



SEQUENCE LISTING

<110> Brooks, Peter
Cheresh, David A.
Friedlander, Martin

<120> METHODS AND COMPOSITIONS USEFUL FOR INHIBITION OF
ALPHA β BETA5 MEDIATED ANGIOGENESIS

<130> MER0065S

<140> 09/194,552

<141> 1999-03-23

<150> PCT/US97/09099

<151> 1997-05-30

<150> 60/018,773

<151> 1996-05-31

<150> 60/015,869

<151> 1996-05-31

<160> 43

<170> PatentIn Ver. 2.0

<210> 1

<211> 5

<212> PRT

<213> Artificial Sequence

C¹
<220>

<223> Description of Artificial Sequence: Peptide

<220>

<221> PEPTIDE

<222> (1)..(5)

<223> BOC signifies the N-terminal protecting group
butyloxycarbonyl; OMe signifies a C-terminal
methyl ester; arginine in the first position.

<220>

<221> PEPTIDE

<222> (1)..(5)

<223> OMe signifies the C-terminal protecting group
methyl ester.

<220>

<221> PEPTIDE

<222> (1)..(5)

<223> A prefix "D" in D-phe signifies that the
phenylalanine in position 4 is a D-amino acid.

<400> 1

Arg Gly Asp Phe Val

1

5

<210> 2
<211> 5
<212> PRT
<213> Artificial Sequence


<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> BOC signifies the N-terminal blocking group
tertbutyloxycarbonyl.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> OH signifies a free C-terminal carboxylic acid.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> A prefix "D" in D-Phe signifies that the
phenylalanine in position 4 is a D-amino acid.

<400> 2
Arg Gly Asp Phe Val
1 5

 <210> 3
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> H signifies a free N-terminal amine.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> OH signifies a free C-terminal carboxylic acid.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> A prefix "D" in D-phe at position 4, signifies
that the phenylalanine is a D-amino acid.

<400> 3
Arg Gly Asp Phe Val
1 5

<210> 4
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Phe is a D-amino acid.

<400> 4
Arg Gly Asp Phe Val
1 5

<210> 5
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Phe is a D-amino acid.

<400> 5
Arg Ala Asp Phe Val
1 5

<210> 6
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(6)
<223> Arg is a D-amino acid.

<400> 6
Gly Arg Gly Asp Phe Val
1 5

<210> 7
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Val is a D-amino acid.

<400> 7
Arg Gly Asp Phe Val
1 5

<210> 8
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<400> 8
Tyr Thr Ala Glu Cys Lys Pro Gln Val Thr Arg Gly Asp Val Phe
1 5 10 15

<210> 9
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE
<222> (1)..(6)
<223> N-methylated valine.

<220>
<221> PEPTIDE
<222> (1)..(6)
<223> Phe is a D-amino acid.

<400> 9
Arg Gly Asp Phe Asn Val
1 5

<210> 10
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide

<220>
<221> PEPTIDE

<222> (1)..(5)
<223> Phe is a D-amino acid.

<220>
<221> PEPTIDE
<222> (5)..(5)
<223> N-methylated valine

<400> 10
Arg Gly Glu Phe Val
1 5

<210> 11
<211> 222
<212> PRT
<213> Homo sapiens

<400> 11
Lys Gly Ile Gln Glu Leu Tyr Gly Ala Ser Pro Asp Ile Asp Leu Gly
1 5 10 15
Thr Gly Pro Thr Pro Thr Leu Gly Pro Val Thr Pro Glu Ile Cys Lys
20 25 30
Gln Asp Ile Val Phe Asp Gly Ile Ala Gln Ile Arg Gly Glu Ile Phe
35 40 45
Phe Phe Lys Asp Arg Phe Ile Trp Arg Thr Val Thr Pro Arg Asp Lys
50 55 60
Pro Met Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Glu Leu Pro Glu
65 70 75 80
Lys Ile Asp Ala Val Tyr Glu Ala Pro Gln Glu Glu Lys Ala Val Phe
85 90 95
Phe Ala Gly Asn Glu Tyr Trp Ile Tyr Ser Ala Ser Thr Leu Glu Arg
100 105 110
Gly Tyr Pro Lys Pro Leu Thr Ser Leu Gly Leu Pro Pro Asp Val Gln
115 120 125
Arg Val Asp Ala Ala Phe Asn Trp Ser Lys Asn Lys Lys Thr Tyr Ile
130 135 140
Phe Ala Gly Asp Lys Phe Trp Arg Tyr Asn Glu Val Lys Lys Lys Met
145 150 155 160
Asp Pro Gly Phe Pro Lys Leu Ile Ala Asp Ala Trp Asn Ala Ile Pro
165 170 175
Asp Asn Leu Asp Ala Val Val Asp Leu Gln Gly Gly Gly His Ser Tyr
180 185 190
Phe Phe Lys Gly Ala Tyr Tyr Leu Lys Leu Glu Asn Gln Ser Leu Lys
195 200 205

Ser Val Lys Phe Gly Ser Ile Lys Ser Asp Trp Leu Gly Cys
 210 215 220

<210> 12
 <211> 193
 <212> PRT
 <213> Homo sapiens

<400> 12
 Ile Cys Lys Gln Asp Ile Val Phe Asp Gly Ile Ala Gln Ile Arg Gly
 1 5 10 15
 Glu Ile Phe Phe Phe Lys Asp Arg Phe Ile Trp Arg Thr Val Thr Pro
 20 25 30
 Arg Asp Lys Pro Met Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Glu
 35 40 45
 Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ala Pro Gln Glu Glu Lys
 50 55 60
 Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp Ile Tyr Ser Ala Ser Thr
 65 70 75 80
 Leu Glu Arg Gly Tyr Pro Lys Pro Leu Thr Ser Leu Gly Leu Pro Pro
 85 90 95
 Asp Val Gln Arg Val Asp Ala Ala Phe Asn Trp Ser Lys Asn Lys Lys
 100 105 110
 Thr Tyr Ile Phe Ala Gly Asp Lys Phe Trp Arg Tyr Asn Glu Val Lys
 115 120 125
 Lys Lys Met Asp Pro Gly Phe Pro Lys Leu Ile Ala Asp Ala Trp Asn
 130 135 140
 Ala Ile Pro Asp Asn Leu Asp Ala Val Val Asp Leu Gln Gly Gly Gly
 145 150 155 160
 His Ser Tyr Phe Phe Lys Gly Ala Tyr Tyr Leu Lys Leu Glu Asn Gln
 165 170 175
 Ser Leu Lys Ser Val Lys Phe Gly Ser Ile Lys Ser Asp Trp Leu Gly
 180 185 190

Cys

<210> 13
 <211> 74
 <212> PRT
 <213> Homo sapiens

<400> 13
 Ile Cys Lys Gln Asp Ile Val Phe Asp Gly Ile Ala Gln Ile Arg Gly
 1 5 10 15

Glu Ile Phe Phe Phe Lys Asp Arg Phe Ile Trp Arg Thr Val Thr Pro
 20 25 30
 Arg Asp Lys Pro Met Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Glu
 35 40 45
 Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ala Pro Gln Glu Glu Lys
 50 55 60
 Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp
 65 70

<210> 14
 <211> 108
 <212> PRT
 <213> Homo sapiens

<400> 14
 Ile Cys Lys Gln Asp Ile Val Phe Asp Gly Ile Ala Gln Ile Arg Gly
 1 5 10 15
 Glu Ile Phe Phe Phe Lys Asp Arg Phe Ile Trp Arg Thr Val Thr Pro
 20 25 30
 Arg Asp Lys Pro Met Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Glu
 35 40 45
 Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ala Pro Gln Glu Glu Lys
 50 55 60
 Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp Ile Tyr Ser Ala Ser Thr
 65 70 75 80
 Leu Glu Arg Gly Tyr Pro Lys Pro Leu Thr Ser Leu Gly Leu Pro Pro
 85 90 95
 Asp Val Gln Arg Val Asp Ala Ala Phe Asn Trp Ser
 100 105

<210> 15
 <211> 122
 <212> PRT
 <213> Homo sapiens

<400> 15
 Glu Tyr Trp Ile Tyr Ser Ala Ser Thr Leu Glu Arg Gly Tyr Pro Lys
 1 5 10 15
 Pro Leu Thr Ser Leu Gly Leu Pro Pro Asp Val Gln Arg Val Asp Ala
 20 25 30
 Ala Phe Asn Trp Ser Lys Asn Lys Lys Thr Tyr Ile Phe Ala Gly Asp
 35 40 45
 Lys Phe Trp Arg Tyr Asn Glu Val Lys Lys Lys Met Asp Pro Gly Phe
 50 55 60

Pro Lys Leu Ile Ala Asp Ala Trp Asn Ala Ile Pro Asp Asn Leu Asp
65 70 75 80
Ala Val Val Asp Leu Gln Gly Gly Gly His Ser Tyr Phe Phe Lys Gly
85 90 95
Ala Tyr Tyr Leu Lys Leu Glu Asn Gln Ser Leu Lys Ser Val Lys Phe
100 105 110
Gly Ser Ile Lys Ser Asp Trp Leu Gly Cys
115 120

<210> 16
<211> 89
<212> PRT
<213> Homo sapiens

<400> 16
Phe Asn Trp Ser Lys Asn Lys Lys Thr Tyr Ile Phe Ala Gly Asp Lys
1 5 10 15
Phe Trp Arg Tyr Asn Glu Val Lys Lys Lys Met Asp Pro Gly Phe Pro
20 25 30
Lys Leu Ile Ala Asp Ala Trp Asn Ala Ile Pro Asp Asn Leu Asp Ala
35 40 45
Val Val Asp Leu Gln Gly Gly Gly His Ser Tyr Phe Phe Lys Gly Ala
50 55 60
Tyr Tyr Leu Lys Leu Glu Asn Gln Ser Leu Lys Ser Val Lys Phe Gly
65 70 75 80
Ser Ile Lys Ser Asp Trp Leu Gly Cys
85

<210> 17
<211> 228
<212> PRT
<213> Gallus gallus

<400> 17
Lys Gly Ile Gln Glu Leu Tyr Glu Val Ser Pro Asp Val Glu Pro Gly
1 5 10 15
Pro Gly Pro Gly Pro Gly Pro Gly Pro Arg Pro Thr Leu Gly Pro Val
20 25 30
Thr Pro Glu Leu Cys Lys His Asp Ile Val Phe Asp Gly Val Ala Gln
35 40 45
Ile Arg Gly Glu Ile Phe Phe Phe Lys Asp Arg Phe Met Trp Arg Thr
50 55 60
Val Asn Pro Arg Gly Lys Pro Thr Gly Pro Leu Leu Val Ala Thr Phe
65 70 75 80

Trp Pro Asp Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ser Pro Gln
 85 90 95
 Asp Glu Lys Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp Val Tyr Thr
 100 105 110
 Ala Ser Asn Leu Asp Arg Gly Tyr Pro Lys Lys Leu Thr Ser Leu Gly
 115 120 125
 Leu Pro Pro Asp Val Gln Arg Ile Asp Ala Ala Phe Asn Trp Gly Arg
 130 135 140
 Asn Lys Lys Thr Tyr Ile Phe Ser Gly Asp Arg Tyr Trp Lys Tyr Asn
 145 150 155 160
 Glu Glu Lys Lys Lys Met Glu Leu Ala Thr Pro Lys Phe Ile Ala Asp
 165 170 175
 Ser Trp Asn Gly Val Pro Asp Asn Leu Asp Ala Val Leu Gly Leu Thr
 180 185 190
 Asp Ser Gly Tyr Thr Tyr Phe Phe Lys Asp Gln Tyr Tyr Leu Gln Met
 195 200 205
 Glu Asp Lys Ser Leu Lys Ile Val Lys Ile Gly Lys Ile Ser Ser Asp
 210 215 220
 Trp Leu Gly Cys
 225

<210> 18
 <211> 193
 <212> PRT
 <213> Gallus gallus

<400> 18
 Leu Cys Lys His Asp Ile Val Phe Asp Gly Val Ala Gln Ile Arg Gly
 1 5 10 15
 Glu Ile Phe Phe Phe Lys Asp Arg Phe Met Trp Arg Thr Val Asn Pro
 20 25 30
 Arg Gly Lys Pro Thr Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Asp
 35 40 45
 Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ser Pro Gln Asp Glu Lys
 50 55 60
 Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp Val Tyr Thr Ala Ser Asn
 65 70 75 80
 Leu Asp Arg Gly Tyr Pro Lys Lys Leu Thr Ser Leu Gly Leu Pro Pro
 85 90 95
 Asp Val Gln Arg Ile Asp Ala Ala Phe Asn Trp Gly Arg Asn Lys Lys
 100 105 110

Thr Tyr Ile Phe Ser Gly Asp Arg Tyr Trp Lys Tyr Asn Glu Glu Lys
 115 120 125
 Lys Lys Met Glu Leu Ala Thr Pro Lys Phe Ile Ala Asp Ser Trp Asn
 130 135 140
 Gly Val Pro Asp Asn Leu Asp Ala Val Leu Gly Leu Thr Asp Ser Gly
 145 150 155 160
 Tyr Thr Tyr Phe Phe Lys Asp Gln Tyr Tyr Leu Gln Met Glu Asp Lys
 165 170 175
 Ser Leu Lys Ile Val Lys Ile Gly Lys Ile Ser Ser Asp Trp Leu Gly
 180 185 190

Cys

<210> 19
 <211> 74
 <212> PRT
 <213> Gallus gallus

<400> 19
 Leu Cys Lys His Asp Ile Val Phe Asp Gly Val Ala Gln Ile Arg Gly
 1 5 10 15
 Glu Ile Phe Phe Phe Lys Asp Arg Phe Met Trp Arg Thr Val Asn Pro
 20 25 30
 Arg Gly Lys Pro Thr Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Asp
 35 40 45
 Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ser Pro Gln Asp Glu Lys
 50 55 60
 Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp
 65 70

<210> 20
 <211> 108
 <212> PRT
 <213> Gallus gallus

<400> 20
 Leu Cys Lys His Asp Ile Val Phe Asp Gly Val Ala Gln Ile Arg Gly
 1 5 10 15
 Glu Ile Phe Phe Phe Lys Asp Arg Phe Met Trp Arg Thr Val Asn Pro
 20 25 30
 Arg Gly Lys Pro Thr Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Asp
 35 40 45
 Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu Ser Pro Gln Asp Glu Lys
 50 55 60

Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp Val Tyr Thr Ala Ser Asn
65 70 75 80

Leu Asp Arg Gly Tyr Pro Lys Lys Leu Thr Ser Leu Gly Leu Pro Pro
85 90 95

Asp Val Gln Arg Ile Asp Ala Ala Phe Asn Trp Gly
100 105

<210> 21
<211> 122
<212> PRT
<213> Gallus gallus

<400> 21
Glu Tyr Trp Val Tyr Thr Ala Ser Asn Leu Asp Arg Gly Tyr Pro Lys
1 5 10 15

Lys Leu Thr Ser Leu Gly Leu Pro Pro Asp Val Gln Arg Ile Asp Ala
20 25 30

Ala Phe Asn Trp Gly Arg Asn Lys Lys Thr Tyr Ile Phe Ser Gly Asp
35 40 45

Arg Tyr Trp Lys Tyr Asn Glu Glu Lys Lys Lys Met Glu Leu Ala Thr
50 55 60

Pro Lys Phe Ile Ala Asp Ser Trp Asn Gly Val Pro Asp Asn Leu Asp
65 70 75 80

Ala Val Leu Gly Leu Thr Asp Ser Gly Tyr Thr Tyr Phe Phe Lys Asp
85 90 95

Gln Tyr Tyr Leu Gln Met Glu Asp Lys Ser Leu Lys Ile Val Lys Ile
100 105 110

Gly Lys Ile Ser Ser Asp Trp Leu Gly Cys
115 120

<210> 22
<211> 89
<212> PRT
<213> Gallus gallus

<400> 22
Phe Asn Trp Gly Arg Asn Lys Lys Thr Tyr Ile Phe Ser Gly Asp Arg
1 5 10 15

Tyr Trp Lys Tyr Asn Glu Glu Lys Lys Lys Met Glu Leu Ala Thr Pro
20 25 30

Lys Phe Ile Ala Asp Ser Trp Asn Gly Val Pro Asp Asn Leu Asp Ala
35 40 45

Val Leu Gly Leu Thr Asp Ser Gly Tyr Thr Tyr Phe Phe Lys Asp Gln
50 55 60

Tyr Tyr Leu Gln Met Glu Asp Lys Ser Leu Lys Ile Val Lys Ile Gly
65 70 75 80

Lys Ile Ser Ser Asp Trp Leu Gly Cys
85

<210> 23
<211> 2123
<212> DNA
<213> Gallus gallus

<220>
<221> CDS
<222> (132)..(2123)

<400> 23
aattccggca aaagagaaaa cgggtgcagag agttaagatg tgcagataag caactagtgc 60
actgtgcagc caaagtaact gacagtcagt cagagaaatc ttttaaagag gattgcaaaa 120

atataggcag a atg aag act cac agt gtt ttt ggc ttc ttt ttt aaa gta 170
Met Lys Thr His Ser Val Phe Gly Phe Phe Phe Lys Val
1 5 10

cta tta atc caa gtg tat ctt ttt aac aaa act tta gct gca ccg tca 218
Leu Leu Ile Gln Val Tyr Leu Phe Asn Lys Thr Leu Ala Ala Pro Ser
15 20 25

cca atc att aag ttc cct gga gac agc act cca aaa aca gac aaa gag 266
Pro Ile Ile Lys Phe Pro Gly Asp Ser Thr Pro Lys Thr Asp Lys Glu
30 35 40 45

cta gca gtg caa tac ctg aat aaa tat tat gga tgc cca aaa gac aat 314
Leu Ala Val Gln Tyr Leu Asn Lys Tyr Tyr Gly Cys Pro Lys Asp Asn
50 55 60

tgc aac tta ttt gta ttg aaa gat act ttg aag aaa atg cag aaa ttt 362
Cys Asn Leu Phe Val Leu Lys Asp Thr Leu Lys Lys Met Gln Lys Phe
65 70 75

ttt ggg ctg cct gaa aca gga gat ttg gat caa aac aca att gag aca 410
Phe Gly Leu Pro Glu Thr Gly Asp Leu Asp Gln Asn Thr Ile Glu Thr
80 85 90

atg aag aaa ccc cgc tgt ggt aac ccc gat gtg gcc aat tac aac ttc 458
Met Lys Lys Pro Arg Cys Gly Asn Pro Asp Val Ala Asn Tyr Asn Phe
95 100 105

ttt cca aga aag cca aaa tgg gaa aag aat cat ata aca tac agg att 506
Phe Pro Arg Lys Pro Lys Trp Glu Lys Asn His Ile Thr Tyr Arg Ile
110 115 120 125

ata ggc tat acc ccg gat ttg gat cct gag aca gta gat gat gcc ttt 554
Ile Gly Tyr Thr Pro Asp Leu Asp Pro Glu Thr Val Asp Asp Ala Phe
130 135 140

gcc cga gcc ttt aaa gtc tgg agt gat gtc acg cca ctg aga ttt aac 602
 Ala Arg Ala Phe Lys Val Trp Ser Asp Val Thr Pro Leu Arg Phe Asn
 145 150 155

cga ata aat gat gga gag gca gac att atg att aat ttt ggc cga tgg 650
 Arg Ile Asn Asp Gly Glu Ala Asp Ile Met Ile Asn Phe Gly Arg Trp
 160 165 170

gaa cat ggt gat ggc tat cca ttt gat ggc aaa gat ggt ctc ctg gct 698
 Glu His Gly Asp Gly Tyr Pro Phe Asp Gly Lys Asp Gly Leu Leu Ala
 175 180 185

cac gcc ttt gca ccg ggg cca gga att gga gga gac tcc cat ttt gat 746
 His Ala Phe Ala Pro Gly Pro Gly Ile Gly Gly Asp Ser His Phe Asp
 190 195 200 205

gat gat gaa ctg tgg act ctt gga gaa ggg caa gtg gtt aga gta aag 794
 Asp Asp Glu Leu Trp Thr Leu Gly Glu Gly Gln Val Val Arg Val Lys
 210 215 220

tat gga aat gca gat ggt gaa tac tgc aaa ttt ccc ttc tgg ttc aat 842
 Tyr Gly Asn Ala Asp Gly Glu Tyr Cys Lys Phe Pro Phe Trp Phe Asn
 225 230 235

ggt aag gaa tac aac agc tgc aca gat gca gga cgt aat gat gga ttc 890
 Gly Lys Glu Tyr Asn Ser Cys Thr Asp Ala Gly Arg Asn Asp Gly Phe
 240 245 250

ctc tgg tgt tcc aca acc aaa gac ttt gat gca gat ggc aaa tat ggc 938
 Leu Trp Cys Ser Thr Thr Lys Asp Phe Asp Ala Asp Gly Lys Tyr Gly
 255 260 265

ttt tgt ccc cat gag tca ctt ttt aca atg ggt ggc aat ggt gat gga 986
 Phe Cys Pro His Glu Ser Leu Phe Thr Met Gly Gly Asn Gly Asp Gly
 270 275 280 285

cag ccc tgc aag ttt ccc ttt aaa ttt caa ggc cag tcc tat gac cag 1034
 Gln Pro Cys Lys Phe Pro Phe Lys Phe Gln Gly Gln Ser Tyr Asp Gln
 290 295 300

tgt aca aca gaa ggc agg aca gat gga tac aga tgg tgt gga acc act 1082
 Cys Thr Thr Glu Gly Arg Thr Asp Gly Tyr Arg Trp Cys Gly Thr Thr
 305 310 315

gaa gac tat gat aga gat aag aaa tac gga ttc tgc cca gaa act gcc 1130
 Glu Asp Tyr Asp Arg Asp Lys Lys Tyr Gly Phe Cys Pro Glu Thr Ala
 320 325 330

atg tca aca gtt ggt gga aat tca gaa gga gct cct tgt gta ttc ccc 1178
 Met Ser Thr Val Gly Gly Asn Ser Glu Gly Ala Pro Cys Val Phe Pro
 335 340 345

ttc atc ttc ctt ggg aat aaa tac gac tcc tgt aca agt gca ggt cgc 1226
 Phe Ile Phe Leu Gly Asn Lys Tyr Asp Ser Cys Thr Ser Ala Gly Arg
 350 355 360 365

aat gat ggc aag ctg tgg tgt gct tct acc agc agc tat gat gat gac 1274
 Asn Asp Gly Lys Leu Trp Cys Ala Ser Thr Ser Ser Tyr Asp Asp Asp
 370 375 380

cgc aag tgg ggc ttt tgt cca gat caa gga tac agt ctc ttc ttg gtt	1322
Arg Lys Trp Gly Phe Cys Pro Asp Gln Gly Tyr Ser Leu Phe Leu Val	
385 390 395	
gct gcc cac gaa ttt ggc cat gcg atg gga tta gag cac tcc gag gac	1370
Ala Ala His Glu Phe Gly His Ala Met Gly Leu Glu His Ser Glu Asp	
400 405 410	
cca gga gct ctc atg gcc ccg atc tac acc tac acc aag aac ttc cgc	1418
Pro Gly Ala Leu Met Ala Pro Ile Tyr Thr Tyr Thr Lys Asn Phe Arg	
415 420 425	
ctt tct cag gat gac att aag ggg att cag gag cta tat gaa gta tca	1466
Leu Ser Gln Asp Asp Ile Lys Gly Ile Gln Glu Leu Tyr Glu Val Ser	
430 435 440 445	
cct gat gtg gaa cct gga cca ggg cca gga cca ggg cca gga cca cgt	1514
Pro Asp Val Glu Pro Gly Pro Gly Pro Gly Pro Gly Pro Gly Pro Arg	
450 455 460	
cct acc ctt gga cct gtc act cca gag ctc tgc aag cac gac att gta	1562
Pro Thr Leu Gly Pro Val Thr Pro Glu Leu Cys Lys His Asp Ile Val	
465 470 475	
ttt gat gga gtt gca caa att aga gga gaa ata ttt ttc ttc aaa gac	1610
Phe Asp Gly Val Ala Gln Ile Arg Gly Glu Ile Phe Phe Phe Lys Asp	
480 485 490	
aga ttc atg tgg agg act gta aac cct cga gga aaa ccc aca ggt cct	1658
Arg Phe Met Trp Arg Thr Val Asn Pro Arg Gly Lys Pro Thr Gly Pro	
495 500 505	
ctt ctc gtt gct aca ttc tgg cct gat ctg cca gag aaa atc gat gct	1706
Leu Leu Val Ala Thr Phe Trp Pro Asp Leu Pro Glu Lys Ile Asp Ala	
510 515 520 525	
gtc tac gag tcc cct cag gat gag aag gct gta ttt ttt gca gga aat	1754
Val Tyr Glu Ser Pro Gln Asp Glu Lys Ala Val Phe Phe Ala Gly Asn	
530 535 540	
gag tac tgg gtt tat aca gcc agc aac ctg gat agg ggc tat cca aag	1802
Glu Tyr Trp Val Tyr Thr Ala Ser Asn Leu Asp Arg Gly Tyr Pro Lys	
545 550 555	
aaa ctc acc agc ctg gga cta ccc cct gat gtg caa cgc att gat gca	1850
Lys Leu Thr Ser Leu Gly Leu Pro Pro Asp Val Gln Arg Ile Asp Ala	
560 565 570	
gcc ttc aac tgg ggc aga aac aag aag aca tat att ttc tct gga gac	1898
Ala Phe Asn Trp Gly Arg Asn Lys Lys Thr Tyr Ile Phe Ser Gly Asp	
575 580 585	
aga tac tgg aag tac aat gaa gaa aag aaa aaa atg gag ctt gca acc	1946
Arg Tyr Trp Lys Tyr Asn Glu Glu Lys Lys Lys Met Glu Leu Ala Thr	
590 595 600 605	
cca aaa ttc att gcg gat tct tgg aat gga gtt cca gat aac ctc gat	1994
Pro Lys Phe Ile Ala Asp Ser Trp Asn Gly Val Pro Asp Asn Leu Asp	
610 615 620	

gct gtc ctg ggt ctt act gac agc ggg tac acc tat ttt ttc aaa gac 2042
Ala Val Leu Gly Leu Thr Asp Ser Gly Tyr Thr Tyr Phe Phe Lys Asp
625 630 635

cag tac tat cta caa atg gaa gac aag agt ttg aag att gtt aaa att 2090
Gln Tyr Tyr Leu Gln Met Glu Asp Lys Ser Leu Lys Ile Val Lys Ile
640 645 650

ggc aag ata agt tct gac tgg ttg ggt tgc tga 2123
Gly Lys Ile Ser Ser Asp Trp Leu Gly Cys
655 660

<210> 24
<211> 663
<212> PRT
<213> Gallus gallus

<400> 24
Met Lys Thr His Ser Val Phe Gly Phe Phe Phe Lys Val Leu Leu Ile
1 5 10 15

Gln Val Tyr Leu Phe Asn Lys Thr Leu Ala Ala Pro Ser Pro Ile Ile
20 25 30

Lys Phe Pro Gly Asp Ser Thr Pro Lys Thr Asp Lys Glu Leu Ala Val
35 40 45

Gln Tyr Leu Asn Lys Tyr Tyr Gly Cys Pro Lys Asp Asn Cys Asn Leu
50 55 60

Phe Val Leu Lys Asp Thr Leu Lys Lys Met Gln Lys Phe Phe Gly Leu
65 70 75 80

Pro Glu Thr Gly Asp Leu Asp Gln Asn Thr Ile Glu Thr Met Lys Lys
85 90 95

Pro Arg Cys Gly Asn Pro Asp Val Ala Asn Tyr Asn Phe Phe Pro Arg
100 105 110

Lys Pro Lys Trp Glu Lys Asn His Ile Thr Tyr Arg Ile Ile Gly Tyr
115 120 125

Thr Pro Asp Leu Asp Pro Glu Thr Val Asp Asp Ala Phe Ala Arg Ala
130 135 140

Phe Lys Val Trp Ser Asp Val Thr Pro Leu Arg Phe Asn Arg Ile Asn
145 150 155 160

Asp Gly Glu Ala Asp Ile Met Ile Asn Phe Gly Arg Trp Glu His Gly
165 170 175

Asp Gly Tyr Pro Phe Asp Gly Lys Asp Gly Leu Leu Ala His Ala Phe
180 185 190

Ala Pro Gly Pro Gly Ile Gly Gly Asp Ser His Phe Asp Asp Asp Glu
195 200 205

C1

Leu Trp Thr Leu Gly Glu Gly Gln Val Val Arg Val Lys Tyr Gly Asn
 210 215 220
 Ala Asp Gly Glu Tyr Cys Lys Phe Pro Phe Trp Phe Asn Gly Lys Glu
 225 230 235 240
 Tyr Asn Ser Cys Thr Asp Ala Gly Arg Asn Asp Gly Phe Leu Trp Cys
 245 250 255
 Ser Thr Thr Lys Asp Phe Asp Ala Asp Gly Lys Tyr Gly Phe Cys Pro
 260 265 270
 His Glu Ser Leu Phe Thr Met Gly Gly Asn Gly Asp Gly Gln Pro Cys
 275 280 285
 Lys Phe Pro Phe Lys Phe Gln Gly Gln Ser Tyr Asp Gln Cys Thr Thr
 290 295 300
 Glu Gly Arg Thr Asp Gly Tyr Arg Trp Cys Gly Thr Thr Glu Asp Tyr
 305 310 315 320
 Asp Arg Asp Lys Lys Tyr Gly Phe Cys Pro Glu Thr Ala Met Ser Thr
 325 330 335
 Val Gly Gly Asn Ser Glu Gly Ala Pro Cys Val Phe Pro Phe Ile Phe
 340 345 350
 Leu Gly Asn Lys Tyr Asp Ser Cys Thr Ser Ala Gly Arg Asn Asp Gly
 355 360 365
 Lys Leu Trp Cys Ala Ser Thr Ser Ser Tyr Asp Asp Asp Arg Lys Trp
 370 375 380
 Gly Phe Cys Pro Asp Gln Gly Tyr Ser Leu Phe Leu Val Ala Ala His
 385 390 395 400
 Glu Phe Gly His Ala Met Gly Leu Glu His Ser Glu Asp Pro Gly Ala
 405 410 415
 Leu Met Ala Pro Ile Tyr Thr Tyr Thr Lys Asn Phe Arg Leu Ser Gln
 420 425 430
 Asp Asp Ile Lys Gly Ile Gln Glu Leu Tyr Glu Val Ser Pro Asp Val
 435 440 445
 Glu Pro Gly Pro Gly Pro Gly Pro Gly Pro Gly Pro Arg Pro Thr Leu
 450 455 460
 Gly Pro Val Thr Pro Glu Leu Cys Lys His Asp Ile Val Phe Asp Gly
 465 470 475 480
 Val Ala Gln Ile Arg Gly Glu Ile Phe Phe Phe Lys Asp Arg Phe Met
 485 490 495
 Trp Arg Thr Val Asn Pro Arg Gly Lys Pro Thr Gly Pro Leu Leu Val
 500 505 510
 Ala Thr Phe Trp Pro Asp Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu
 515 520 525

Ser Pro Gln Asp Glu Lys Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp
 530 535 540
 Val Tyr Thr Ala Ser Asn Leu Asp Arg Gly Tyr Pro Lys Lys Leu Thr
 545 550 555 560
 Ser Leu Gly Leu Pro Pro Asp Val Gln Arg Ile Asp Ala Ala Phe Asn
 565 570 575
 Trp Gly Arg Asn Lys Lys Thr Tyr Ile Phe Ser Gly Asp Arg Tyr Trp
 580 585 590
 Lys Tyr Asn Glu Glu Lys Lys Lys Met Glu Leu Ala Thr Pro Lys Phe
 595 600 605
 Ile Ala Asp Ser Trp Asn Gly Val Pro Asp Asn Leu Asp Ala Val Leu
 610 615 620
 Gly Leu Thr Asp Ser Gly Tyr Thr Tyr Phe Phe Lys Asp Gln Tyr Tyr
 625 630 635 640
 Leu Gln Met Glu Asp Lys Ser Leu Lys Ile Val Lys Ile Gly Lys Ile
 645 650 655
 Ser Ser Asp Trp Leu Gly Cys
 660

<210> 25
 <211> 631
 <212> PRT
 <213> Homo sapiens

<400> 25
 Ala Pro Ser Pro Ile Ile Lys Phe Pro Gly Asp Val Ala Pro Lys Thr
 1 5 10 15
 Asp Lys Glu Leu Ala Val Gln Tyr Leu Asn Thr Phe Tyr Gly Cys Pro
 20 25 30
 Lys Glu Ser Cys Asn Leu Phe Val Leu Lys Asp Thr Leu Lys Lys Met
 35 40 45
 Gln Lys Phe Phe Gly Leu Pro Gln Thr Gly Asp Leu Asp Gln Asn Thr
 50 55 60
 Ile Glu Thr Met Arg Lys Pro Arg Cys Gly Asn Pro Asp Val Ala Asn
 65 70 75 80
 Tyr Asn Phe Phe Pro Arg Lys Pro Lys Trp Asp Lys Asn Gln Ile Thr
 85 90 95
 Tyr Arg Ile Ile Gly Tyr Thr Pro Asp Leu Asp Pro Glu Thr Val Asp
 100 105 110
 Asp Ala Phe Ala Arg Ala Phe Gln Val Trp Ser Asp Val Thr Pro Leu
 115 120 125

Arg Phe Ser Arg Ile His Asp Gly Glu Ala Asp Ile Met Ile Asn Phe
 130 135 140
 Gly Arg Trp Glu His Gly Asp Gly Tyr Pro Phe Asp Gly Lys Asp Gly
 145 150 155 160
 Leu Leu Ala His Ala Phe Ala Pro Gly Thr Gly Val Gly Gly Asp Ser
 165 170 175
 His Phe Asp Asp Asp Glu Leu Trp Thr Leu Gly Glu Gly Gln Val Val
 180 185 190
 Arg Val Lys Tyr Gly Asn Ala Asp Gly Glu Tyr Cys Lys Phe Pro Phe
 195 200 205
 Leu Phe Asn Gly Lys Glu Tyr Asn Ser Cys Thr Asp Thr Gly Arg Ser
 210 215 220
 Asp Gly Phe Leu Trp Cys Ser Thr Thr Tyr Asn Phe Glu Lys Asp Gly
 225 230 235 240
 Lys Tyr Gly Phe Cys Pro His Glu Ala Leu Phe Thr Met Gly Gly Asn
 245 250 255
 Ala Glu Gly Gln Pro Cys Lys Phe Pro Phe Arg Phe Gln Gly Thr Ser
 260 265 270
 Tyr Asp Ser Cys Thr Thr Glu Gly Arg Thr Asp Gly Tyr Arg Trp Cys
 275 280 285
 Gly Thr Thr Glu Asp Tyr Asp Arg Asp Lys Lys Tyr Gly Phe Cys Pro
 290 295 300
 Glu Thr Ala Met Ser Thr Val Gly Gly Asn Ser Glu Gly Ala Pro Cys
 305 310 315 320
 Val Phe Pro Phe Thr Phe Leu Gly Asn Lys Tyr Glu Ser Cys Thr Ser
 325 330 335
 Ala Gly Arg Ser Asp Gly Lys Met Trp Cys Ala Thr Thr Ala Asn Tyr
 340 345 350
 Asp Asp Asp Arg Lys Trp Gly Phe Cys Pro Asp Gln Gly Tyr Ser Leu
 355 360 365
 Phe Leu Val Ala Ala His Glu Phe Gly His Ala Met Gly Leu Glu His
 370 375 380
 Ser Gln Asp Pro Gly Ala Leu Met Ala Pro Ile Tyr Thr Tyr Thr Lys
 385 390 395 400
 Asn Phe Arg Leu Ser Gln Asp Asp Ile Lys Gly Ile Gln Glu Leu Tyr
 405 410 415
 Gly Ala Ser Pro Asp Ile Asp Leu Gly Thr Gly Pro Thr Pro Thr Leu
 420 425 430
 Gly Pro Val Thr Pro Glu Ile Cys Lys Gln Asp Ile Val Phe Asp Gly
 435 440 445

Ile Ala Gln Ile Arg Gly Glu Ile Phe Phe Phe Lys Asp Arg Phe Ile
 450 455 460
 Trp Arg Thr Val Thr Pro Arg Asp Lys Pro Met Gly Pro Leu Leu Val
 465 470 475 480
 Ala Thr Phe Trp Pro Glu Leu Pro Glu Lys Ile Asp Ala Val Tyr Glu
 485 490 495
 Ala Pro Gln Glu Glu Lys Ala Val Phe Phe Ala Gly Asn Glu Tyr Trp
 500 505 510
 Ile Tyr Ser Ala Ser Thr Leu Glu Arg Gly Tyr Pro Lys Pro Leu Thr
 515 520 525
 Ser Leu Gly Leu Pro Pro Asp Val Gln Arg Val Asp Ala Ala Phe Asn
 530 535 540
 Trp Ser Lys Asn Lys Lys Thr Tyr Ile Phe Ala Gly Asp Lys Phe Trp
 545 550 555 560
 Arg Tyr Asn Glu Val Lys Lys Lys Met Asp Pro Gly Phe Pro Lys Leu
 565 570 575
 Ile Ala Asp Ala Trp Asn Ala Ile Pro Asp Asn Leu Asp Ala Val Val
 580 585 590
 Asp Leu Gln Gly Gly Gly His Ser Tyr Phe Phe Lys Gly Ala Tyr Tyr
 595 600 605
 Leu Lys Leu Glu Asn Gln Ser Leu Lys Ser Val Lys Phe Gly Ser Ile
 610 615 620
 Lys Ser Asp Trp Leu Gly Cys
 625 630

<210> 26
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:
 Oligonucleotide primer

<400> 26
 attgaattct tctacagttc a

21

<210> 27
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:
 Oligonucleotide primer

<400> 27
atgggatcca ctgcaaattt c 21

<210> 28
<211> 21
<212> DNA
<213> Artificial Sequence


<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 28
gccggatcca tgaccagtgt a 21

<210> 29
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 29
gtgggatccc tgaagactat g 21

 <210> 30
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 30
aggggatcct taaggggatt c 21

<210> 31
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 31
ctcggatcct ctgcaagcac g 21

<210> 32
<211> 21
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 32

ctcggatcct ctgcaagcac g

21

<210> 33

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 33

gcaggatccg agtgctgggt ttatac

26

<210> 34

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 34

gcagaattca actgtggcag aaacaag

27

<210> 35

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 35

gtagaattcc agcactcatt tcctgc

26

<210> 36

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 36

tctgaattct gccacagttg aagg 24

<210> 37
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 37
attgaattct tctacagttc a 21

<210> 38
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 38
gatgaattct actgcaagtt 20

<210> 39
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Oligonucleotide primer

<400> 39
cactgaattc atctgcaaac a 21

<210> 40
<211> 429
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human MMP-2
fusion protein

<400> 40
Tyr Cys Lys Phe Pro Phe Leu Phe Asn Gly Lys Glu Tyr Asn Ser Cys
1 5 10 15

Thr Asp Thr Gly Arg Ser Asp Gly Phe Leu Trp Cys Ser Thr Thr Tyr
20 25 30

Asn Phe Glu Lys Asp Gly Lys Tyr Gly Phe Cys Pro His Glu Ala Leu
 35 40 45
 Phe Thr Met Gly Gly Asn Ala Glu Gly Gln Pro Cys Lys Phe Pro Phe
 50 55 60
 Arg Phe Gln Gly Thr Ser Tyr Asp Ser Cys Thr Thr Glu Gly Arg Thr
 65 70 75 80
 Asp Gly Tyr Arg Trp Cys Gly Thr Thr Glu Asp Tyr Asp Arg Asp Lys
 85 90 95
 Lys Tyr Gly Phe Cys Pro Glu Thr Ala Met Ser Thr Val Gly Gly Asn
 100 105 110
 Ser Glu Gly Ala Pro Cys Val Phe Pro Phe Thr Phe Leu Gly Asn Lys
 115 120 125
 Tyr Glu Ser Cys Thr Ser Ala Gly Arg Ser Asp Gly Lys Met Trp Cys
 130 135 140
 Ala Thr Thr Ala Asn Tyr Asp Asp Asp Arg Lys Trp Gly Phe Cys Pro
 145 150 155 160
 Asp Gln Gly Tyr Ser Leu Phe Leu Val Ala Ala His Glu Phe Gly His
 165 170 175
 Ala Met Gly Leu Glu His Ser Gln Asp Pro Gly Ala Leu Met Ala Pro
 180 185 190
 Ile Tyr Thr Tyr Thr Lys Asn Phe Arg Leu Ser Gln Asp Asp Ile Lys
 195 200 205
 Gly Ile Gln Glu Leu Tyr Gly Ala Ser Pro Asp Ile Asp Leu Gly Thr
 210 215 220
 Gly Pro Thr Pro Thr Leu Gly Pro Val Thr Pro Glu Ile Cys Lys Gln
 225 230 235 240
 Asp Ile Val Phe Asp Gly Ile Ala Gln Ile Arg Gly Glu Ile Phe Phe
 245 250 255
 Phe Lys Asp Arg Phe Ile Trp Arg Thr Val Thr Pro Arg Asp Lys Pro
 260 265 270
 Met Gly Pro Leu Leu Val Ala Thr Phe Trp Pro Glu Leu Pro Glu Lys
 275 280 285
 Ile Asp Ala Val Tyr Glu Ala Pro Gln Glu Glu Lys Ala Val Phe Phe
 290 295 300
 Ala Gly Asn Glu Tyr Trp Ile Tyr Ser Ala Ser Thr Leu Glu Arg Gly
 305 310 315 320
 Tyr Pro Lys Pro Leu Thr Ser Leu Gly Leu Pro Pro Asp Val Gln Arg
 325 330 335

Val Asp Ala Ala Phe Asn Trp Ser Lys Asn Lys Lys Thr Tyr Ile Phe
340 345 350

Ala Gly Asp Lys Phe Trp Arg Tyr Asn Glu Val Lys Lys Lys Met Asp
355 360 365

Pro Gly Phe Pro Lys Leu Ile Ala Asp Ala Trp Asn Ala Ile Pro Asp
370 375 380

Asn Leu Asp Ala Val Val Asp Leu Gln Gly Gly Gly His Ser Tyr Phe
385 390 395 400

Phe Lys Gly Ala Tyr Tyr Leu Lys Leu Glu Asn Gln Ser Leu Lys Ser
405 410 415

Val Lys Phe Gly Ser Ile Lys Ser Asp Trp Leu Gly Cys
420 425

<210> 41
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Fmoc modified.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> OBut1 modified at position 3.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Methylated valine at position 5.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Valine with a carboxy terminal ONa.

<400> 41
Arg Gly Asp Phe Val
1 5

<210> 42
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Fmoc modified

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> OButyl modified in position 3.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Methylated valine in position 5.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Valine with a hydroxyl group.

<400> 42
Arg Gly Asp Phe Val
1 5

<210> 43
<211> 5
<212> PRT
<213> Artificial Sequence

C¹
<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> OButl modified at position 3.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Methylated valine at position 5.

<220>
<221> PEPTIDE
<222> (1)..(5)
<223> Valine with a hydroxyl group.

<400> 43
Arg Gly Asp Phe Val
1 5